RMD 428.c3
Extra
XC

UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY

FOREST INSECT INVESTIGATIONS

RESULTS OF AN EXPERIMENTAL CUTTING

ON THE

TIMBER MT. SAMPLE PLOT

PROGRESS REPORT 1930

by

HUBERT L. PERSON
Assistant Entomologist
U. S. Bureau of Entomology

National FS Library
USDA Forest Service

MAR 2 4 2014

240 W Prospect Rd
Fort Collins CO 80526

Annex I
SB
763
C2 M6
1930C
C. 2

Berkeley, California
November 1930

U. S. GOVERNMENT PRINTING OFFICE: 1930 J 76183

[illegible] OF AN EXPERIMENTAL DUSTING

ON THE

[illegible] SWEET CLOT

[illegible] REPORT 1930

by

[illegible] L. PEARSON
Assistant Entomologist
U.S. Bureau of Entomology

Berkeley, California
November 1930

RESULTS OF AN EXPERIMENTAL CUTTING
ON THE
TIMBER MT. SAMPLE PLOT

Progress Report 1930

Introduction

This experiment in entomological marking was begun in 1927, on the Timber Mt. sample plot of the Modoc National Forest. Its purpose is to test the tree-selection theories which have been evolved as a result of studies covering a number of years (Person (1)).

The sample plot was laid out in the fall of 1927, and the trees considered most attractive to the western pine beetle were marked for cutting on the north half of the 40-acre plot. The marked trees were removed early in 1928 and the south half of the plot was left as a check area. An account of the experiment is given in detail in a report by Person (2).

The original stand on the thinned area and the amount of timber removed and left standing are given in Table 1.

Table 1

	Number of Trees			Volume in Board Feet		
	Total	Per Acre	Per Cent	Total	Per Acre	Per Cent
Original stand, living	498	25	100	195,560	9,778	100
Stand removed	265	13	53	115,400	5,770	59
Stand left	234	12	47	80,160	4,008	41

An effort was made to leave as large a stand as possible without retaining many highly susceptible trees. The stand left, averaging more than 4,000 board feet per acre, is undoubtedly larger than would be allowed to remain in regular Forest Service practice; so it would have been possible to remove more of the susceptible trees and still leave a fair reserve stand.

The plot was cruised in the fall of 1928, in 1929 and 1930 to determine the insect loss in both the cut-over area and the uncut area. In addition, a number of the insect-killed trees were felled in 1930 to determine what insects were making the primary attack.

---

(1) Person, Hubert L. Sample Plot Studies of Tree Selection by the Western Pine Beetle. Unpublished report; Jun. 1928.

(2) Person, Hubert L. Preliminary Results of an Experimental Cutting on the Timber Mt. Sample Plot. Unpublished report; Feb. 1929

We now have the record of insect loss for 1927 (before the cutting), for 1928, 1929, and for all but a part of the winter loss for 1930, after cutting. It is still too early to get anything conclusive from the experiment; but the writer is to discontinue this study because of a change of assignment, and so a report at this time seems desirable.

Results

The complete insect loss since the area was logged, for both the cutover and the uncut parts of the plot, is given in Table 2. The total stand at the completion of the cutting is also given.

Table 2

Insect Losses on Kimber Mt. Plot,
Cutover and Uncut Parts, Since Logging in 1928

	Cutover				Uncut			
	Trees		Volume		Trees		Volume	
	No.	%	Bd. ft.	%	No.	%	Bd. ft.	%
Total stand at completion of logging	834	100	90,160	100	480	100	134,920	100
Insect loss since logging: 1928,1929,1930(partial)								
D.brevicomis	4	1.7	800	1.0	21	4.4	7,300	4.7
Ips, Buprestids etc.	7	4.0	1,900	2.4	13	2.7	2,930	1.9
Total	11	4.7	2,700	3.4	34	7.1	10,230	6.6

This table shows that the losses have been much lower on the cutover plot than on the uncut plot, not only in number of trees and volume, as would be expected, but also on the basis of percentage of stand remaining after thinning. The loss, both in number of trees and volume, is over three times as great on the uncut as on the thinned plot. The loss in volume for 1928, 1929 and most of 1930 is 3.4 per cent of the stand on the thinned plot and 6.6 per cent on the check area.

But although the above figures of total insect losses show the reduction in losses resulting from thinning, the comparison of losses due to D.brevicomis alone is even more significant. The tree-selection studies are based only on the study of the western pine beetle, and it is known that some of the so-called secondary species do not show the same selection; consequently the trees remaining on the thinned area are not necessarily unattractive to these secondaries. The cutover part of the plot was also at a disadvantage, because a great deal of the slash left after logging was not burned until it had a chance to breed up numbers of insects which served as a menace to the remaining stand. Because of this the effectiveness of an entomological marking based on our tree-selection studies should be judged on the basis of the reduction in D.brevicomis losses, not total insect losses. On this basis we find that the losses by volume on the unthinned check area are nearly five times as great as on the thinned area; viz., only 1.0 per cent for the thinned part and 4.7 per cent for the unthinned.

But in spite of this apparent difference in favor of the thinned 20 acres, the effectiveness of the marking is open to question until it is shown that the losses on the two parts of the plot were approximately similar before the thinning. A comparison of the 1927 losses on the two parts of the plot shown that although a greater number of trees were killed on the thinned check area (77 on the check area and 48 on the north part of the plot that was thinned later), the volume losses on the two parts of the plot are almost identical--24,240 for the north 20 acres (thinned) and 24,220 for the south 20 acres (unthinned check).

The inadequacy of the data is appreciated. The area is very small and the experiment has not run long enough to be of great value. However, the results are interesting in that they agree with what would be expected on the basis of our tree-selection studies.

The losses on the thinned area are still noticeably high; but in view of the fact that the entire stand is suffering from deficient moisture and that the thinned area is a very small island surrounded on three sides by heavy infestation, it is to be expected that the losses would continue at a much higher rate than would be expected under more favorable circumstances.

Recommendations

It will probably be worth while to continue the examinations on this area for a number of years, not only to determine the total loss but also the cause of death of the killed trees. At the end of the fifth year after the thinning it would be interesting to take another series of cores from both parts of the plot to determine whether the thinning has materially affected the growth rate of the remaining trees.

It is hoped that a similar experiment on a much larger scale can be carried out in the near future in connection with the Pickering sale.